No. 9600188

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Kaneka Seeds Co., Ltd.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN CING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY TION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Akibiyori'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of Washington, D.C. this ninth day of April, in the year two thousand two.*

Attest:

Acting Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secre[illegible]lture

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
KANEKO SEEDS CO., LTD.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
KB5

3. VARIETY NAME
AKIBIYORI

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
50-12, Furuichi-machi 1-chome
Maebashi City, Gunma Pref. 3718503 Japan

5. TELEPHONE *(include area code)*
81-(27)-251-1611

6. FAX *(include area code)*
81-(27)-290-1086

FOR OFFICIAL USE ONLY

PVPO NUMBER
9600188

FILING DATE
3/18/96

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Corporation

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
Stock Company

9. DATE OF INCORPORATION
June 1, 1947

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
NAME: Saijuro Kaneko
ADDRESS: KANEKO SEEDS CO., LTD.
50-12, Furuichi-machi 1-chome
Maebashi City, Gunma Pref. 3718503 Japan

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 2450.00
DATE 3/18/96

CERTIFICATION FEE:
$ 320.00
DATE 10-01-01

11. TELEPHONE *(Include area code)*
81-(27)-251-1611

12. FAX *(Include area code)*
81-(27)-290-1086

13. E-MAIL
oversea@kanekoseeds.co.jp

14. CROP KIND *(Common Name)*
Soybean

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☐ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be depositied and maintained in an approved public repository)*
g. ☐ Filing and Examination Fee ($2,705), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes", answer items 20 and 21 below)* ☒ NO *(If "no," go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☐ YES ☐ NO
IF YES, WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1, 2, 3, *etc.* ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☒ YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☐ NO
IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
NAME *(Please print or type)*		NAME *(Please print or type)*	
Saijuro Kaneko			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
President KANEKO SEEDS CO., LTD.			

S&T-470 (2-99) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (6-98) which is obsolete. *(See reverse for instructions and information collection burden statement)*

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $2,705 ($320 filing fee and $2,385 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvp.htm

ITEM

18a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

19. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

21. *See Section 83 of the Act for the Contents and Term of Plant Variety Protection.*

22. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

23. *See Section 5.5 of the Act for instructions on claiming the benefit of an earlier filing date.*

21. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

22. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

The date of first sales: May 31, 1996, in Japan.

23. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

Registered under the Seeds and Seedlings Law in Japan as "OOIRI" dated December 5, 1997.
Registration Number: 5858

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

To avoid conflict with other variety names in use, the applicant must check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center–East, Beltsville, MD 20705. Telephone: (301) 504-8089.

S&T-470 (2-99) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (6-98) which is obsolete.

Exhibit A. Origin and breeding history

Experimental number: KB5
Variety name: AKIBIYORI

1990 SUMMER

120 plants of "SHINANO HIRAMAME" were cultivated in the field at KUNISADA breeding station owned by KANEKO SEEDS CO., LTD.. And one mutant was observed in the field.
The seeds of Soybean "SHINANO HIRAMAME" contain soluble sugar abundantly, and are tasty and appropriate materials for making Natto . But it is desirable that a soybean seed have a white hilum for making Natto. Though he seed of "SHINANO HIRAMAME" have a black hilum, this mutant has a white one and was named as "KB5"after selection and seed production.

Description:
"SHINANO HIRAMAME" is bred at "CHUSHIN Agriculture Examination Station" in Japan. It's characters are very large seed size, pale green seed coat, purple flower, brown pubescence, black hilum, late maturing and good taste when boiling.
Today, though "SHINANO HIRAMAME"is widely cultivated, a registration of this variety is not taken part under the Seeds and Seedlings Law in Japan.

1991 summer

36 plants of M1 (generation 1 of after mutation) of "KB5" was cultivated.
The characteristics of all plants are different from "SHINANO HIRAMAME" in the following matters. The characteristic of KB5 was white hilum, gray pubescence and rather smaller and uniform seed size than those of "SHINANO HIRAMAME", and its other characteristics except the above were the same as those of "SHINANO HIRAMAME". In its qualitative charaters, only hilum color was very difficult and other characters are uniform.
Now, therefore, "KB5" was considered as a mutant from "SHINANO HIRAMAME".
No variant was observed in the qualitative character. 5 plants which have appropriate spread of the branches, good setting without disease were selected.

1992 summer

60 plants of M2 were cultivated.
No variant was observed in the qualitative character.
5 plants which have appropriate spread of the branches, good setting without disease

were selected.

1993 summer

60 plants of M3 were cultivated.
No variant was observed in the qualitative character.
6 plants which have appropriate spread of the branches, good setting without disease were selected.

1993-1994 winter

Test of processing suitability for "NATTO".
And it's proved to KB5 have good character.

1994 summer

M4 cultivated 72 plants.
No variant was observed in the qualitative character.
6 plants which have appropriate spread of the branches, good setting without disease were selected.
3 plants tending to fall easily with branches more spreading in lateral directions were removed in the field, and other 69 plants were harvested their seeds.

1994-1995 winter

The above seeds were tested regarding suitability for processing "NATTO".

1995 summer

120 plants of M5 were cultivated.
No variant was observed in the qualitative character.
Since no off-type was observed in plant type and the cultivated plants were very uniform, all plants were harvested their seeds.
"KB5" was named as "AKIBIYORI".

Evidence of stability

Variety "AKIBIYORI" has been observed over 4 generations regarding its yield and seed increase plot and is stable and uniform.. No variants were observed.

Kind of variants

"AKIBIYORI" is no variants by observation of 4 years.

AKIBIYORI

EXHIBIT B
STATEMENT OF DISTINCTNESS

'Variety AKIBIYORI' is most similar to 'Variety SHINANO-HIRAMAME'; however, 'Variety AKIBIYORI' has a yellow hilum, whereas 'Variety SHINANO-HIRAMAME' has a black hilum.

('Variety AKIBIYORI' hilum color is '10Y 6/6' at Munsell Book of Color vs 'Variety SHINANO-HIRAMAME' hilum color is "10Y 2/2 at Munsell Book of Color'.)

'Variety AKIBIYORI' is most similar to 'Variety SHINANO-HIRAMAME'; however, 'Variety AKIBIYORI' has a gray pubscence, whereas Variety 'SHINANO-HIRAMAME' has a brown pubescence.

UNITED STATES DEPARTMENT OF AGRICULTURE, AGRICULTURAL MARKETING SERVICE, SCIENCE DIVISION
PLANT VARIETY PROTECTION OFFICE
10301 BALTIMORE BLVD., RM. 500, NATIONAL AGRICULTURAL LIBRARY BUILDING
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF SOYBEAN VARIETY
(PVP APPLICATION EXHIBIT "C")
Glycine max (L.)Merr.

Name of Applicant:	Variety Name: AKIBIYORI
KANEKO SEEDS CO., LTD.	Experimental Name (if applicable): *(very important if one has ever been used)*: KB5
Address (Street and No., City, State, Zip Code): 50-12, Furuichi-machi 1 Chome Maebashi City Gunma Pref. 371 Japan	PLEASE DO NOT WRITE IN THIS SPACE FOR PVP OFFICE USE ONLY PVP NUMBER:

For each characteristic, please place the number of the character state that best represents your variety in the corresponding box. If you feel the best choice is not listed, write in what you believe to be the most accurate description.

1. [SSHP]:SEED SHAPE	1=[SPHR] spherical: (L/W, L/T, and T/W ratios = < 1.2)	2=[SPHF] spherical-flattened: (L/W ratio > 1.2; L/T ratio < 1.2	3=[ELON] elongate: (L/T ratio > 1.2; T/W < 1.2	4=[ELFL] elongate-flattened: (L/T ratio > 1.2; T/W > 1.2)
[4]				

2. [SCL]:SEED COAT COLOR:

[5] 1=[YEL]yellow 2=[GRN]green 3=[BRN]brown 4=[BLK]black
5=[OTH]other *(please specify)* light green

3. [LU]:SEED COAT LUSTER

[2] 1=[DL]dull 2=[SH]shiny

4. [SSZ]:SEED SIZE: [2][6] grams/100 seeds

5. [HCL]:HILUM COLOR:

[2] 1=[BUF]buff 2=[YEL]yellow 3=[BRN]brown 4=[GRY]gray 5=[IBL]imperfect black
6=[BLA]black 7=[OTH]Other *(please specify)* _____

6. [CCL]:COTYLEDON.COLOR

[1] 1=[YEL]yellow 2=[GRN]green

7. [PA]:SEED PROTEIN PEROXIDASE ACTIVITY

[1] 1=[LO]low 2=[HI]high

8. [P]:SEED PROTEIN ELECTROPHORETIC BAND

[2] 1=[A]Type A 2=[B]Type B

9. [HC]:HYPOCOTYL COLOR	1=[GRN]green ('Evans'; 'Davis')	2=[GB]green with bronze band below cotyledons ('Woodworth'; 'Tracy')	3=[LPR]light purple below cotyledons ('Beeson'; Pickett 71')	4=[DPR]dark purple extending to unifoliolate leaves (Hodgson'; 'Coker Hampton 266A')
[3]				

10. [SP]:LEAFLET SHAPE

[3] 1=[LN]lanceolate 2=[OL]oval 3=[OV]ovate 4=[OTH]other (specify) e.g., [CB]=oblong [EP]=elliptical _____

7

11. [FCL]:FLOWER COLOR

[2] 1=[WHI]white 2=[PUR]purple 3=[WPT]white w/purple throat

12. [PCL]:POD COLOR

[2] 1=[TAN]tan 2=[BRN]brown 3=[BLA]black

13. [PBC]:PLANT PUBESCENCE COLOR

[1] 1=[GRY]gray 2=[BRN]brown 3=[TWN]tawny 4=[LTN]light tawny

14. [PHB]:PLANT HABIT

[1] 1=[DET]determinate ('Gnome'; 'Braxton') 2=[SDT]:semi-determinate ('Will')
3=[IND]indeterminate ('Nebsoy'; 'Improved Pelican') 4=[INT]:intermediate

15. [MAT]:MATURITY GROUP

[9] 1=000 2=00 3=0 4=I 5=II 6=III 7=IV 8=V 9=VI 10=VII 11=VIII 12=IX 13=X

16. [MATS]:MATURITY SUBGROUP (early) 1 2 3 4 5 6 7 8 9 (late)

[7]

17. DISEASE REACTION (Enter 0=not tested; 1=susceptible; 2=resistant; 3=tolerant)

BACTERIAL DISEASES

[0] [BCPS]:Bacterial Pustule (*Xanthomonas campestris* pv. *glycines* (Nakano) Dye)

[0] [BCBL]:Bacterial Blight (*Pseudomonas syringae* pv. *glycinea* (Coerper) Young, Dye, & Wilkie)

[0] [WDFR]:Wildfire Blight (*Pseudomonas syringae* pv. *tabaci* (Wolf & Foster) Young, Dye, & Wilkie)

FUNGAL DISEASES

[0] [BRSP]:Brown Spot (*Septoria glycines*)

[FGEY]:Frogeye Leafspot (*Cercospora sojina*)

[0] [FG01]race1 [0] [FG02]race2 [0] [FG03]race3 [0] [FG04]race4 [0] [FG05]race5 [0] [FG06]race6
[0] [FG0O]:other (please specify _____)

[0] [TRSP]:Target Spot (*Corynespora cassiicola*)

[0] [DYML]:Downey Mildew (*Peronospora trifoliorum* var. *manchurica*)

[0] [PWML]:Powdery Mildew (*Microsphaera diffusa*)

[0] [BRSR]:Brown Stem Rot (*Cephalosporium gregatum*)

[0] [STCR]:Stem Canker (*Diaporthe phaseolorum var. caulivora*)

[0] [PSBL]:Pod and Stem Blight (*Diaporthe phaseolorum var. sojae*)

[0] [PRST]:Purple Seed Stain (*Cercospora kikuchii*)

(Enter 0=not tested; 1=susceptible; 2=resistant; 3=tolerant)

[0] [RZRT]:Rhizoctonia Root Rot *(Rhizoctonia solani)*

[PYPH]:Phytophthora Root Rot *(Phytophthora megasperma* Drechs. f. sp. *glycinea)*

[0] [PY01]:race 1 [0] [PY02]:race 2 [0] [PY03]:race 3 [0] [PY04]:race 4 [0] [PY05]:race 5

[0] [PY06]:race 6 [0] [PY07]:race 7 [0] [PY08]:race 8 [0] [PY09]:race 9 [0] [PY10]:race 10

[0] [PY11]:race 11 [0] [PY12:]race 12 [0] [PY13]:race 13 [0] [PY14]:race 14 [0] [PY15]:race 15

[0] [PY16]:race 16 [0] [PY17]:race 17 [0] [PY18]:race 18 [0] [PY19]:race 19 [0] [PY20]:race 20

[0] [PY21]:race 21 [0] [PY22]:race 22 [0] [PY23]:race 23 [0] [PY24]:race 24 [0] [PY25]:race 25

[0] [PY26]:race 26 [0] [OTHD]:other *(please specify)* _____

V I R A L D I S E A S E S

[0] [BDBL]:Bud Blight (Tobacco Ringspot Virus)

[0] [BYMO]:Yellow Mosaic (Bean Yellow Mosaic Virus)

[0] [CWCV]:Cowpea Mosaic (Cowpea Chlorotic Virus)

[0] [PDML]:Pod Mottle (Bean Pod Mottle Virus)

[0] [SDMT]:Seed Mottle (Soybean Mosaiç Virus)

N E M A T O D E S

[SYCY]:Soybean Cyst Nematode *(Heterodera glycines)*

[0] [SY01]:race 1 [0] [SY02]:race 2 [0] [SY03]:race 3 [0] [SY05]:race 5

[0] [SY06]:race 6 [0] [SY09]:race 9 [0] [SY14]:race 14 *(formerly race 4)*

[0] [SY0o]:other race *(specify)* _____

[0] [LANC]:Lance Nematode *(Hoplolaimus columbus)*

[0] [RTKN]:Southern Root Knot Nematode *(Meloidogyne incognita)*

[0] [NTKN]:Northern Root Knot Nematode *(Meloidogyne hapla)*

[0] [PTKN]:Peanut Root Knot Nematode *(Meloidogyne arenaria)*

[0] [RENM]:Reniform Nematode *(Rotylenchus reniformus)* [0] [OTHD]:other *(specify* _____*)*

20. PHYSIOLOGICAL RESPONSES: (Enter 0=not tested; 1=susceptible; 2=resistant; 3=tolerant)

[0] [CHLO]: Iron Chlorosis on Calcareous Soil

[0] other *(please specify* _____*)*

INSECTS

21. INSECT REACTIONS: (Enter 0=not tested; 1=susceptible; 2=resistant; 3=tolerant)

[0] [MXBB]: Mexican Bean Beetle *(Epilachna varivestis)*

[0] [POTH]: Potato Leaf Hopper *(Empoasca abae)*

[0] [OTHI]: other *(please specify* _____*)*

HERBICIDES

22. HERBICIDE RESISTANCE: (Enter 0=not tested; 1=susceptible; 2=resistant; 3=tolerant)

[0] [MEZN]: Metribuzin

[0] [SULF]: Sulfonylurea

[0] [RNDP]: Roundup

[0] [OTHH]: other *(please specify* _____*)*

ADDITIONAL INFORMATION

Please add any additional information characteristic of your variety that you feel is pertinent. This information may be continued on additional pages and/or in the exhibit D.

EXHIBIT D
BT: 7/24/01

9600188

NO. Fig. 1

"Akibiyori"
plant type
'95.8.24
seeding day
'95.6.12

NO. Fig. 2

"Sinano hiromame"
plant type
'95.8.24
seeding day
'95.6.12

NO. Fig. 3

"Harts507"
plant type
'94.8.19
seeding day
'94.6.14

Fig. 4

"Harts 922"
plant type
'94. 8. 19
seeding day
'94. 6. 14

Fig 5

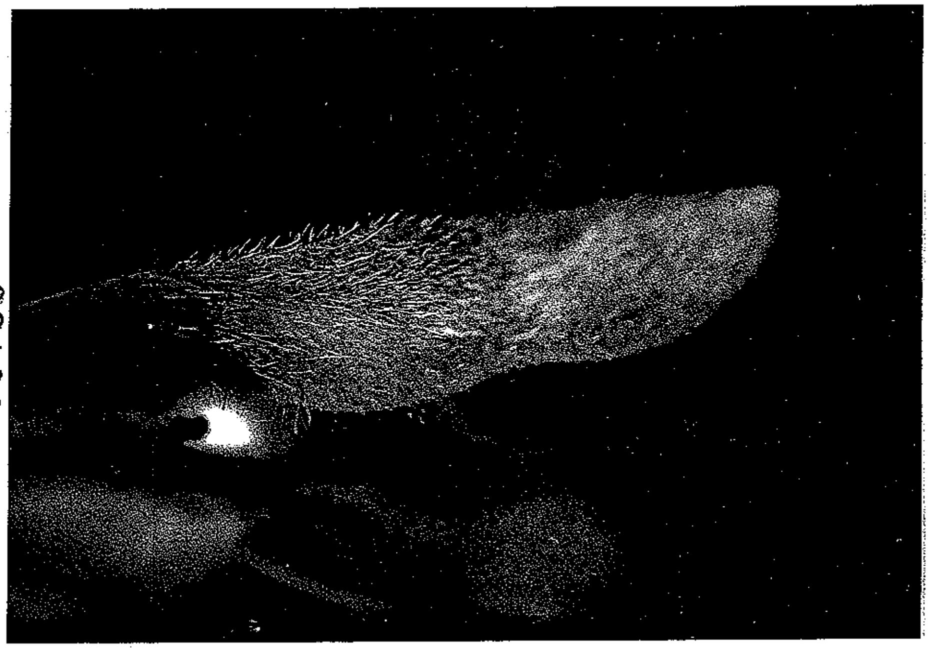
"Akibiyori"
leaflet
'95. 8. 24
seeding day
'95. 6. 12

Fig. 6

"Akibiyori"
flower
'95. 8. 24
seeding day
'95. 6. 12

EXHIBIT D

9600188

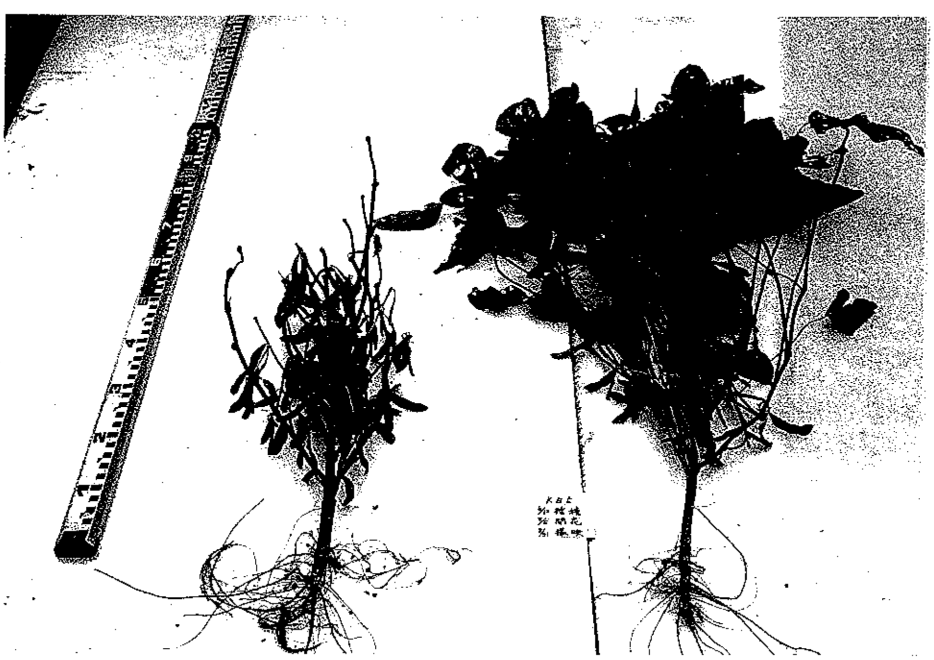


NO. Fig. 7

"Akibiyori"
pod and
pubesence
'95. 8.24
seeding day
'95. 6.12

NO. Fig. 8

"Sinano hiramame"
pod and
pubesence
'95. 8.24
seeding day
'95. 6.12

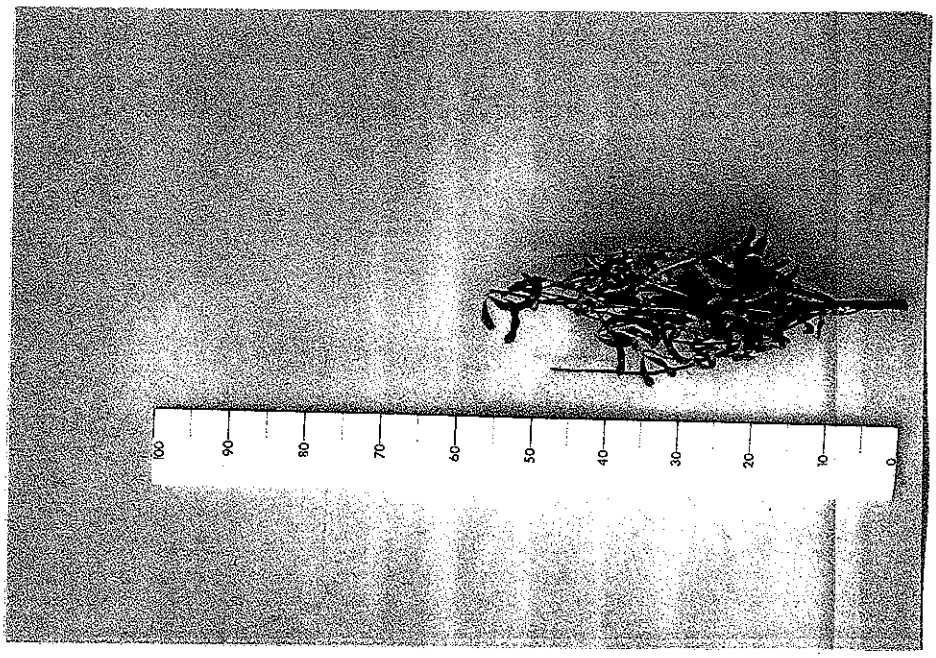


NO. Fig. 9

"Akibiyori"
plant type
memo. in this fig.
seeding day 6/12
flowering day 8/5
photographing day 8/31

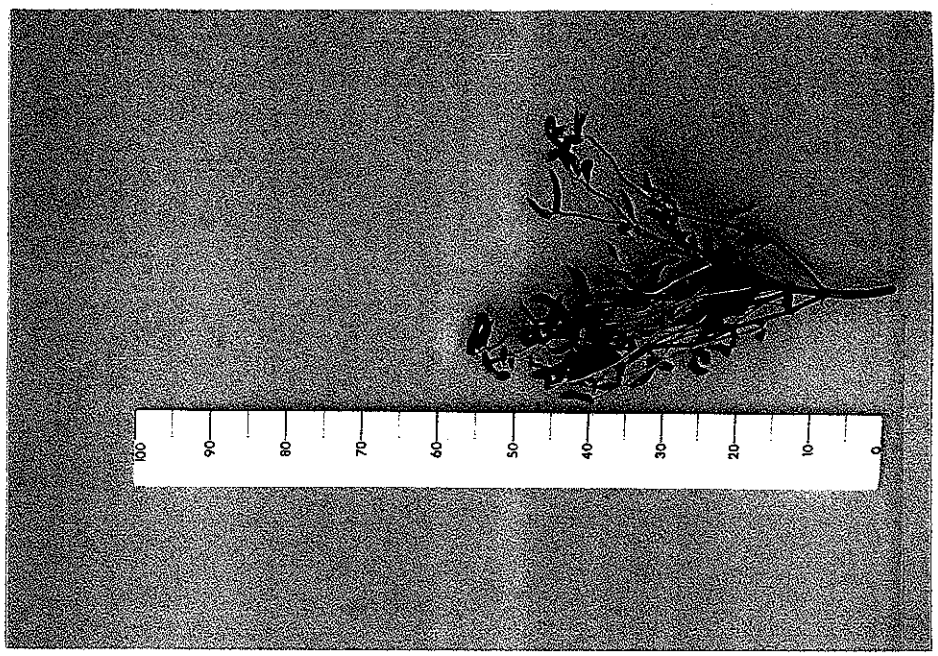
NO. Fig. 10

"Akibiyori"
plant type
(maturing time)
'95.11.10
seeding day
'95.6.12



NO. Fig. 11

"Sinano hiramame"
plant type
(maturing time)



NO.

余　　白

Fig. 12 Plant type.

(maturing time. From left to right SHINANO HIRAMAME, AKIBIYORI(KB5) and ENREI.)

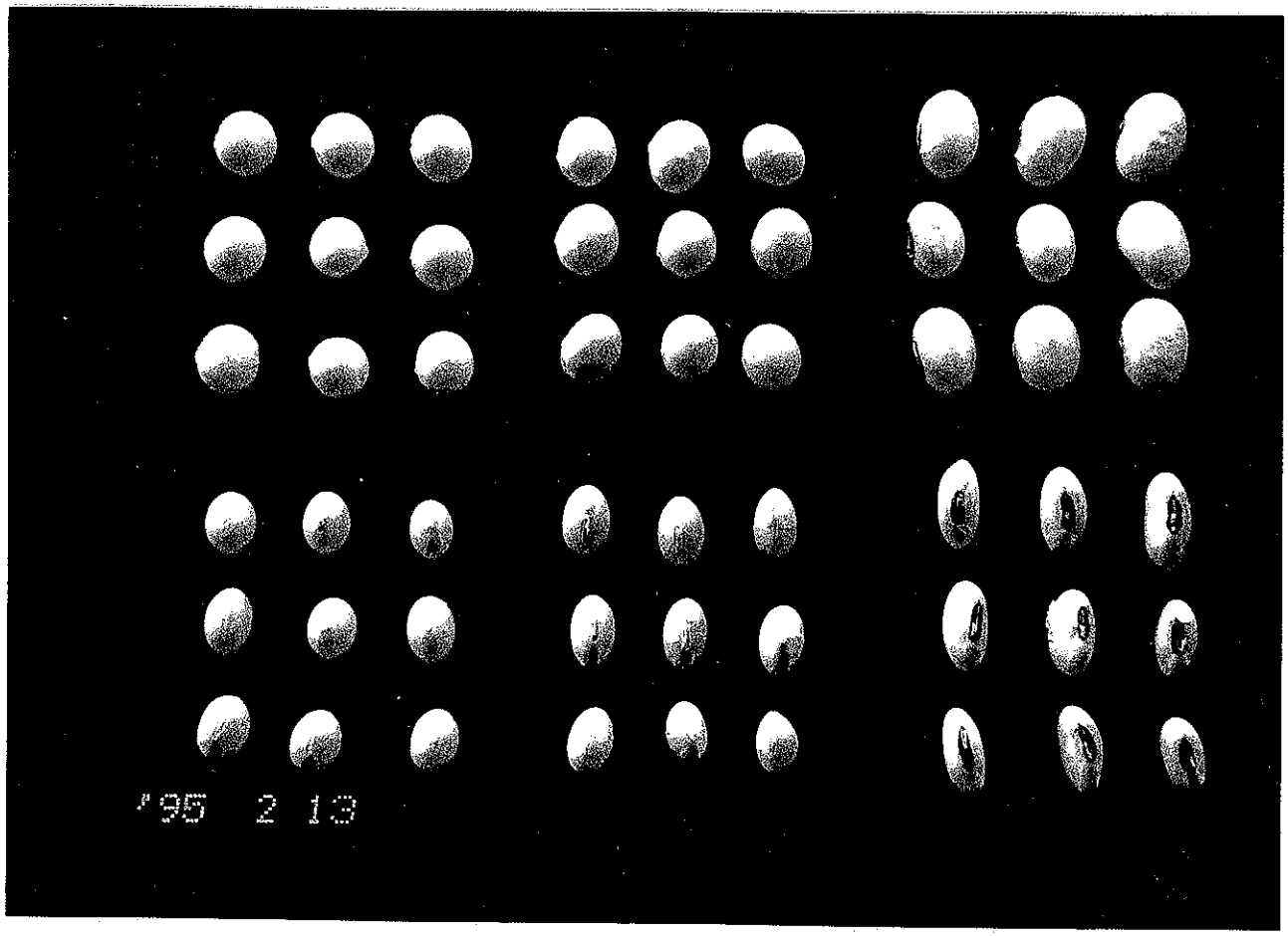


Fig. 13 Seed shape. (from left to right ENREI, AKIBIYORI(KB5) and SHINANO HIRAMAME.)

EXHIBIT D 07/24/01

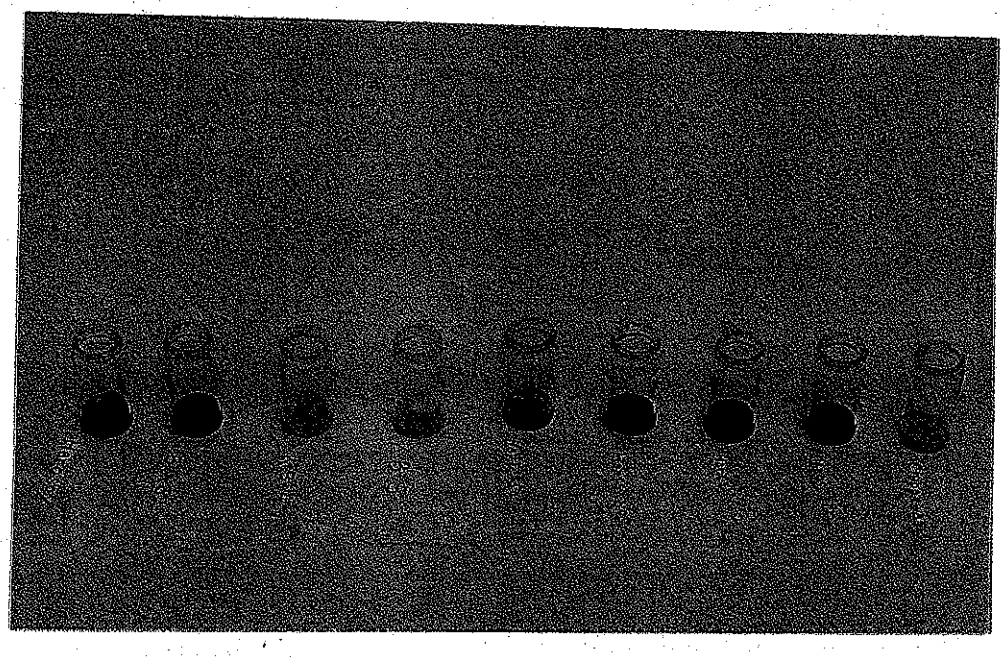


Fig.15 A drop of 0.1% hydrogen peroxide was added and color was recorded after 20 sec. (from left to right Harosoy, Suzunishiki (B3), KB4, Akibiyori(KB5), Harts507, Harts605, Harts608, Harts922 and Chippewa.) We used seeds 3 months old.

EXHIBIT D BT: 7/24/01

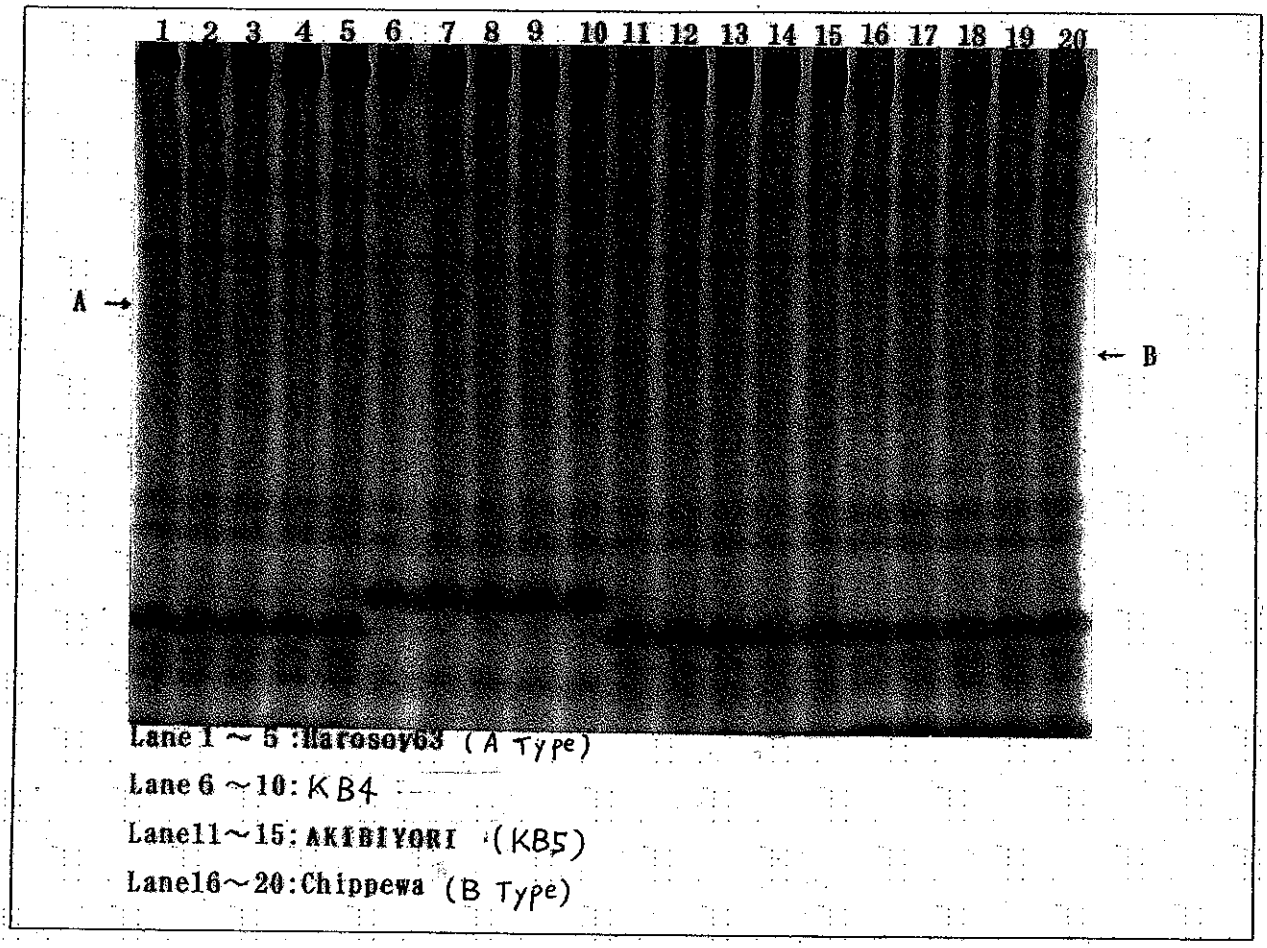
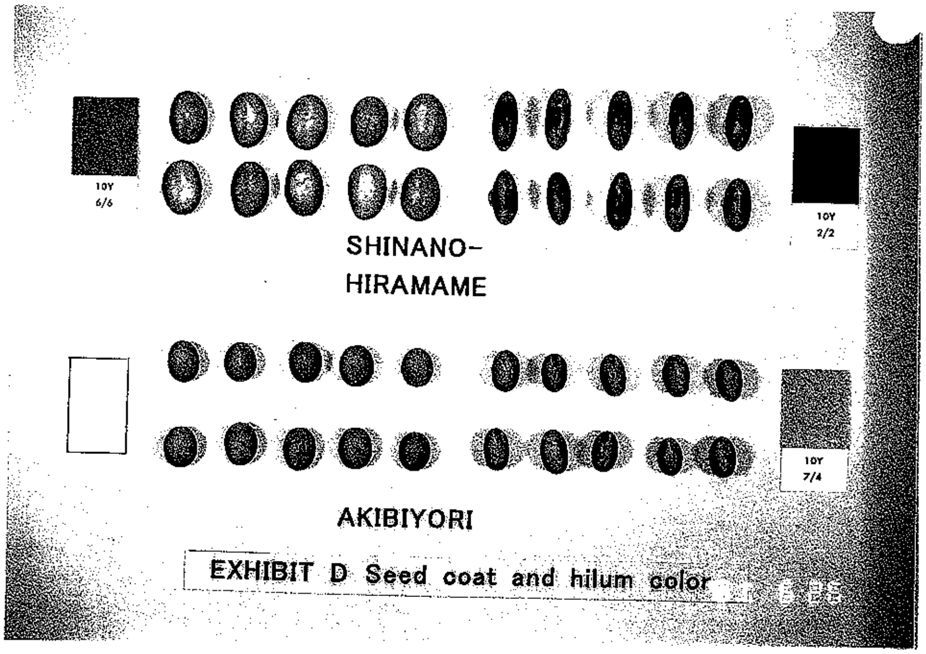
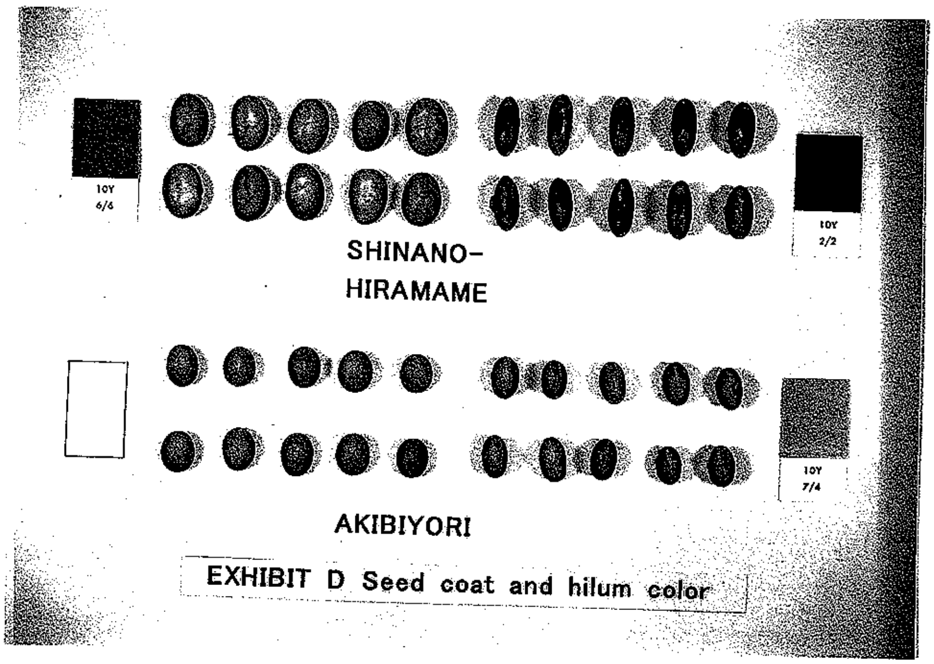


Fig.16 Banding patterns of seed protein from 4 soybean varieties.



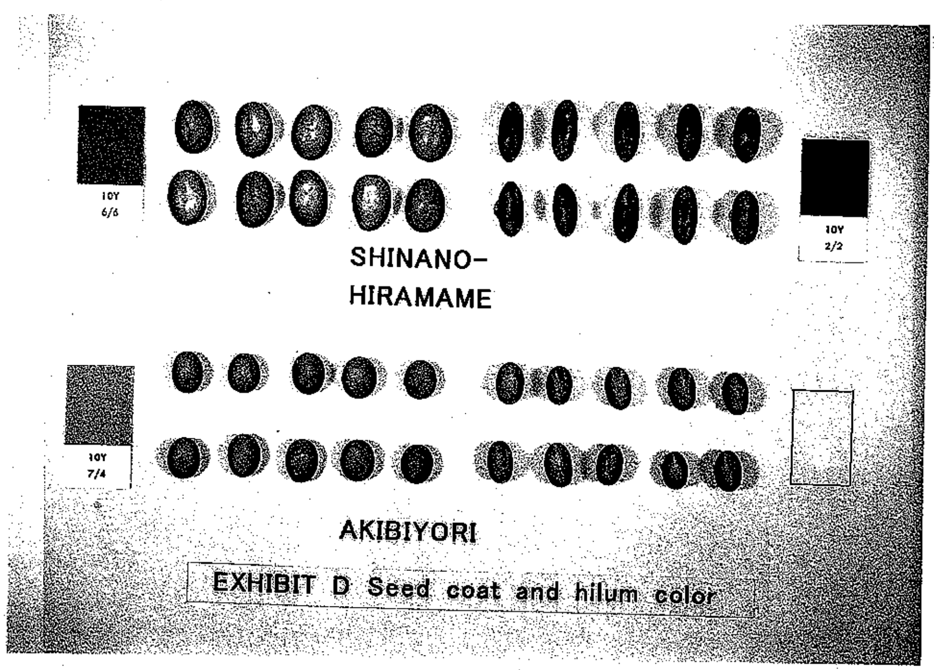
10Y 6/6
10Y 2/2
SHINANO-
HIRAMAME
10Y 7/4
AKIBIYORI
EXHIBIT D Seed coat and hilum color

No.



10Y 6/6
10Y 2/2
SHINANO-
HIRAMAME
10Y 7/4
AKIBIYORI
EXHIBIT D Seed coat and hilum color

No.



10Y 6/6
10Y 2/2
SHINANO-
HIRAMAME
10Y 7/4
AKIBIYORI
EXHIBIT D Seed coat and hilum color

No.

EXHIBIT P Ex. 7/24/01

Seed protein peroxidase activity.

Methods of seed protein peroxidase activity referred to report of B. R. Buttery and R. I. Buzzell. (Crop Science 8:722-726, 1968)

B. R. Buttery and R. I. Buzzell. 1968. Peroxidase acitivity in seeds of soybean varieties. Crop Science 8:722-726.

EXPERIMENTAL PROCEDURE

A spot test for peroxidase activity was developed in which the seed coat of individual seeds was soaked in 10 drops of 0.5% guaiacol solution for 10 min, a drop of 0.1% hydrogen peroxide was added, and the presence or absence of color was recorded after 20 to 40 sec. The high activity varieties produced an intense reddish-brown color, while during the same time interval, the low activity types showed virtually no color reaction. For every variety listed, at least five seeds were tested. In a few cases a larger number were examined. Since peroxidase activity in the seed coat of single seeds decreases with age (unpublished results), we used seeds which were from 3 to 15 months old.

EXHIBIT D
BT: 7/24/01

Seed protein electrophoreric band.

Methods of Seed protein electrophoreric band referred to report of Arnold L. Larsen. (Crop Science 7:311-313, 1967)

Arnold. L. Larsen. 1967. Electrophoretic difference in seed protein among varieties of soybean, Glycine max (L.) Merrill. Crop Science 7:311-313

MATERIALS AND METHODS

Seed samples of 64 soybean varieties representing diverse locations and several years, were collected from the entire soybean-production area of the United States and Canada.

A 5-g seed sample of each variety was ground finely in a small grinder-mixer and then mixed with 20 ml of 0.1 N acetate buffer[1] (pH4.8). After an overnight extraction at 4 C, the gruel was centrifuged at 30,000 ×g and 0 C for 30 minutes, the pellet discarded and the supernatant adjusted to pH 8.0 with 0.1 N KOH. The solution was refrigerated for 1 -hour and then centrifuged at 15,000 ×g and 0 C for 15 minutes. The final supernatant was a light-yellow, clear solution containing approximately 10 to 13 mg protein per ml.

[1] The extractant was an equal mixture of 0.1 N soduim acetate and 0.1 N acetic acid.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
KANEKO SEEDS CO., LTD.	KB5	AKIBIYORI

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	5. TELEPHONE *(include area code)*	6. FAX *(include area code)*
50-12, Furuichi-machi 1-chome Maebashi City, Gunma Pref. 3718503 Japan	81-(27)-251-1611	81-(27)-290-1086
	7. PVPO NUMBER	

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* **If no, please explain.** ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? ☐ YES ☒ NO
If no, give name of country Japan

10. Is the applicant the original owner? ☒ YES ☐ NO ***If no, please answer one of the following:***

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?
☐ YES ☐ NO **If no, give name of country**

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?
☐ YES ☐ NO **If no, give name of country**

11. Additional explanation on ownership *(if needed, use reverse for extra space)*:
This variety was registered by KANEKO SEEDS CO., LTD. in Japan under the Seeds and Seedlings Law dated December 5, 1997 named as "OOIRI".

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

11. Additional explanation on ownership (CONTINUED FROM FRONT)

This variety has been bred by KANEKO SEEDS's breeder on his duties. KANEKO's employee including breeder agree that all the rights for the varieties bred on his duty and the rights comes from its registration must belong to KANEKO SEEDS CO., LTD..

Therefore, rights of application and ownership will be hold the KANEKO SEEDS CO., LTD..

9600188

8農産第１１９８号
平成８年２月２９日

カネコ種苗株式会社
代表取締役社長　金子才十郎　殿

農林水産省農産園芸局長

出願品種の証明について

平成８年２月２６日付け文書をもって申請のあったこのことについて，別添のとおり出願証明書（英文）を送付する。

9600188

Ministry of Agriculture, Forestry and Fisheries

Japanese Government

February 29, 1996

To whom it may concern;

I hereby certify that the attached is a true copy of the application for plant variety protection which the Japanese authority has received concerning the Soybean variety "Akibiyori". Some relevant items in that application are reproduced below;

1) name and address of applicant : Kaneko Seeds Co., Ltd.
50-2, Furuichimachi 1-chome, Maebashi-shi
Gunma, JAPAN

2) species to which the plant variety belongs :
Glycine max (L.) Merrill

3) proposed denomination : Akibiyori

4) date of application : February 20, 1995

5) applications outside Japan preceding the date of this application :
None

6) application number : 7599

S. Kuromoto

Shigemasa Kuromoto
Director
Seeds and Seedlings Division
Agricultural Production Bureau
Ministry of Agriculture, Forestry and Fisheries
1-2-1 Kasumigaseki, Chiyoda-ku
Tokyo, JAPAN

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